

Technical Manual

MDT IP Interface



SCN-IP000.01

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2 Overview

2.1 Areas of application

The KNX IP Interface operates as Interface to KNX/EIB. It can replace a RS232 or an USB interface. Using the IP-Interface allows the user to access the KNX/EIB from every point of the LAN. The power supply can be done externally by 12V or 24V AC/DC or as an alternative directly by Power-over-Ethernet (IEEE 802.3af).

2.2 Structure & Handling

The KNX IP Interface is an MRDC with the size of 2 TE. It contains of the following display- and operating-elements:

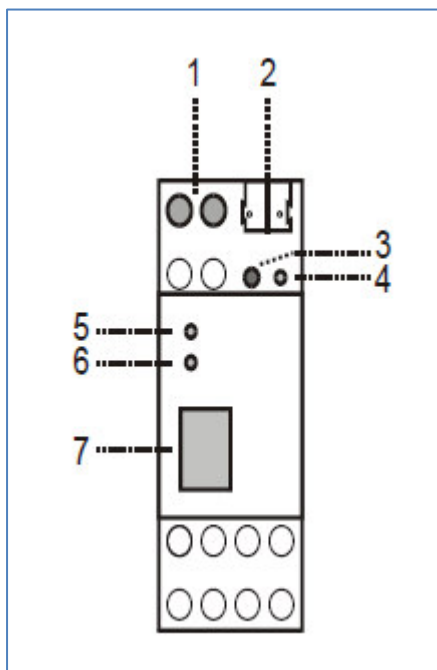


Illustration 1: Overview hardware module

1	Connection via externally power supply (12V to 24V AC/DC)
2	Connection for the KNX/EIB via a bus-connection clamp
3	Programming button, activates the programming mode; Programming-LED lights
4	Programming-LED(red), voids when programming process is completed
5	LED (green): - lights when bus power from KNX/EIB is available - flashes when telegrams are sent
6	LED (green): - lights when Ethernet connection is available - flashes when telegrams are sent
7	RJ 45 socket to connect an Ethernet patch cable

Chart 1: Description hardware module

The connection of an externally power supply is only required if the used switch does not support power-over-Ethernet.

2.3 Settings at the ETS-Software

Selection at the product database:

Manufacturer: MDT Technologies

Product family: TP Interfaces/Gateways

Product type: IP

Medium Type: Twisted Pair (TP)

Product name: KNX IP Interface

Order number: SCN-IP000.01

The commissioning of the device is synonymous with the parameterization, because the communication is adjusted between KNX/EIB devices and the ETS-Software.

3 Settings at the device

The database of the IP-Interfaces is divided in three submenus at the manual IP-address assignment. Standardly, the automatic IP-address assignment is chosen, so only the submenu „General is shown.

3.1 General

The following parameterization options are available at the submenu general:

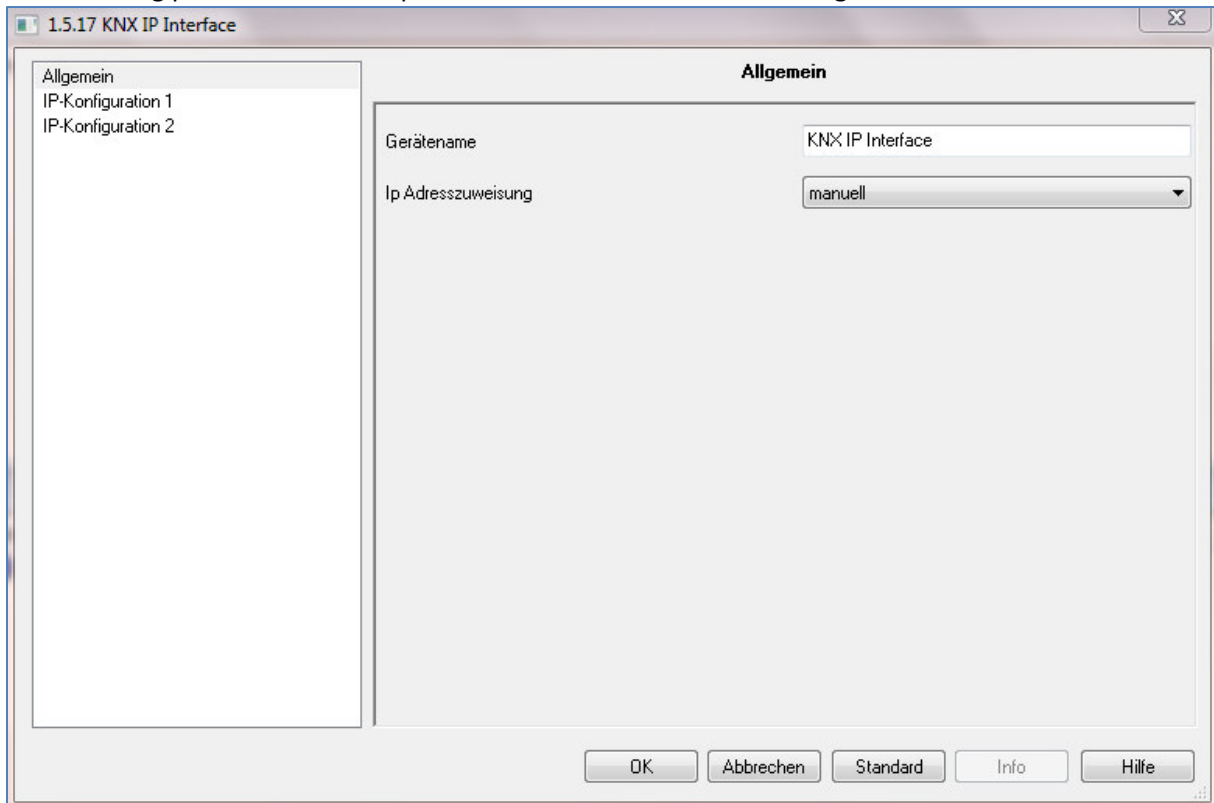


Illustration 2: General

The following chart shows the dynamic range for these parameters:

ETS-text	Dynamic range [default value]	comment
Device name	<i>any</i>	Any name can be chosen for the KNX IP Interface. The name should be meaningful (e.g. line upstairs). It is used to search or recognize a device.
IP-address assignment	<ul style="list-style-type: none"> ▪ automatic ▪ manual 	Adjustment, whether the IP-address is assigned manual or automatic via DHCP server.

Chart 2: General

If the setting automatic is chosen, the assignment of the IP-address will be done automatic via DHCP server, so no further settings are required. To use this setting, a DHCP-server must be available at the LAN (e.g. many DSL-Router have an integrated DHCP-Server).

At the manual setting, the IP-address, the subnet and the gateway must be configured manual. To configure these, the submenus „IP-configuration 1“and „IP-configuration 2“ is shown. The setting options of these both submenus are described at the following segments.

3.2 IP-Configuration 1

The following illustration shows the setting options at the submenu IP-Configuration 1:

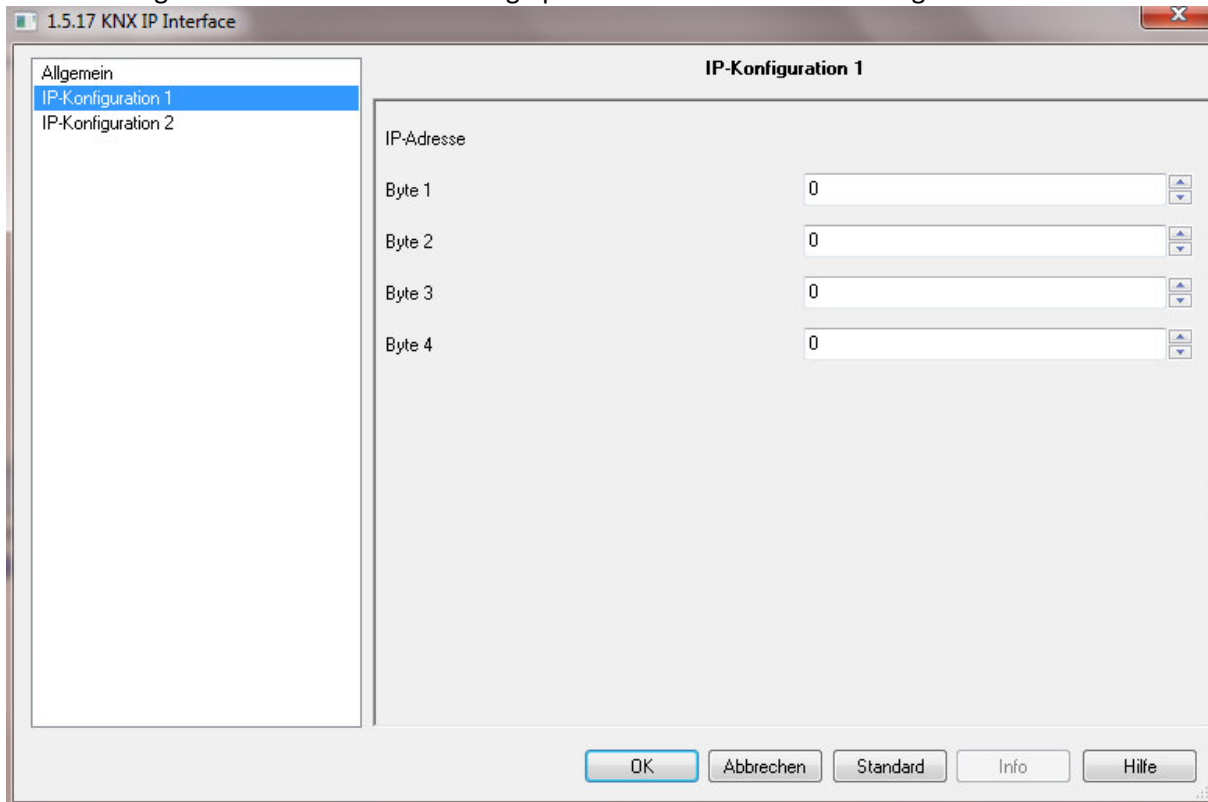


Illustration 3: IP-Configuration 1

The assignment of the IP-address is made by 4 single Byte values, which can have all the values from 0-255. The assigned IP-address is assembled as follows:

Byte 1.Byte 2.Byte 3.Byte 4.

Now the IP-address must be assigned, so that the PC and the Interface have the same values for Byte 1-3. So the affiliation at the network is given. The fourth byte must be one free IP-address (0-255) at the network, to avoid addressing conflicts.

3.3 IP-Configuration 2

The following illustration shows the setting options at the submenu IP-Configuration 2:

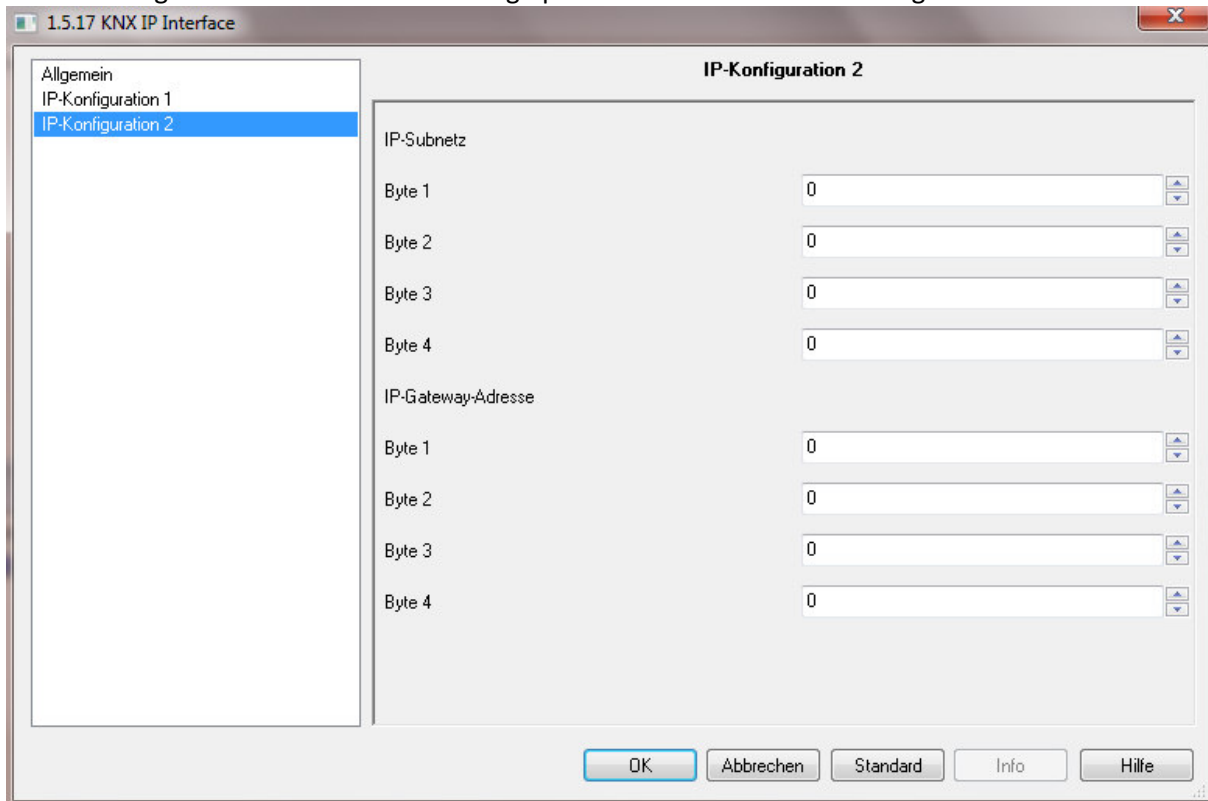


Illustration 4: IP-Configuration 2

At the submenu „IP-Configuration 2“, the IP-subnet and the gateway address is adjusted. The IP-subnet mask is used to determine whether a communication partner is available at the network. If the communication partner is not in the local network, the device will sent the telegrams to the gateway, which assumes the forwarding.

The setting for the IP-Gateway allows that networks, which work with different protocols, can communicate with each other.

Note: If the KNX IP Interface shall only be used at the local area network, the setting 0.0.0.0 can persist.

The network settings of the communicating PC can be looked up at the network settings of the PC.

3.4 Example for the assignment of IP-addresses

Via a PC shall be accessed to the KNX IP Interface. The PC has the following IP-settings:

IP-Address of the PC: **192.168.1.30**
Subnet of the PC: **255.255.255.0**

The KNX IP Interface is at the same local LAN that means it uses the same subnet. The area of the IP-address is restricted by the subnet that means in this example the IP-adress of the interface must be 192.168.1.xx. "XX" can be any number at the range of 0-255 (with the exception of 30, which is already used). It is important to ensure, that no address is assigned twice.

So the following settings are made at the IP-Interface:

IP-Address of the IP Interface: **192.168.1.31**
Subnet of the IP Interface: **255.255.255.0**

4 Configuration of the communication interface (ETS-Software)

4.1 ETS3-Software

At the ETS3-Software, the following 3 steps must be done successively to configure the IP-Interface. The fourth step is only required if the interface is not recognized.

Step 1:

If the IP configuration of the KNX IP Interface is valid, this interface can be used to the KNX/EIB. To use this function, the tab "communication" at the ETS-Software must be chosen at Extras -> Options (from Version 3.0c):

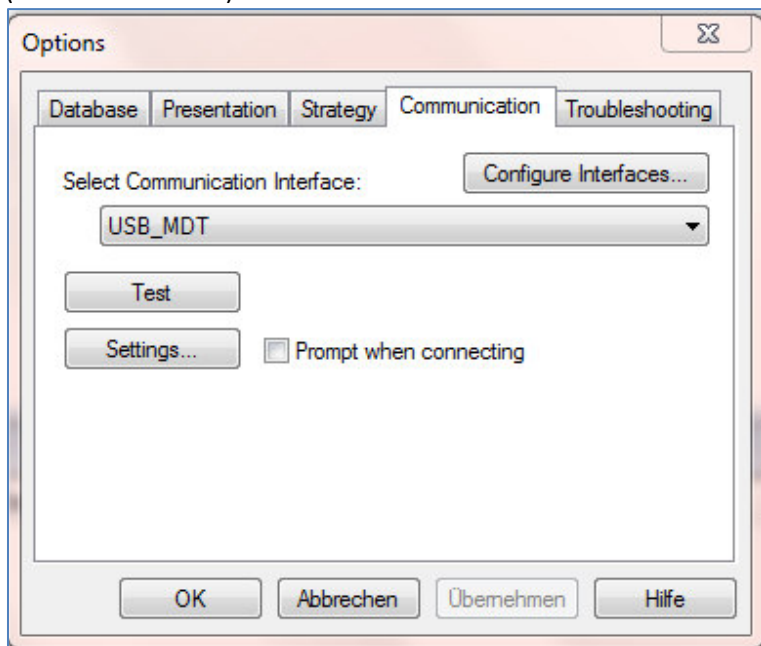


Illustration 5: Communication

Now the button "Configure Interfaces.." must be chosen.

Step 2:

The ETS Connection Manager is opened. A new connection with the type KNXnet/IP must be invested. The ETS starts with the automatic search of all KNXnet/IP devices. All found devices are shown. The found devices are listed. Now the desired device, with the right MAC-adress, which is listed at the side of the device, must be chosen.

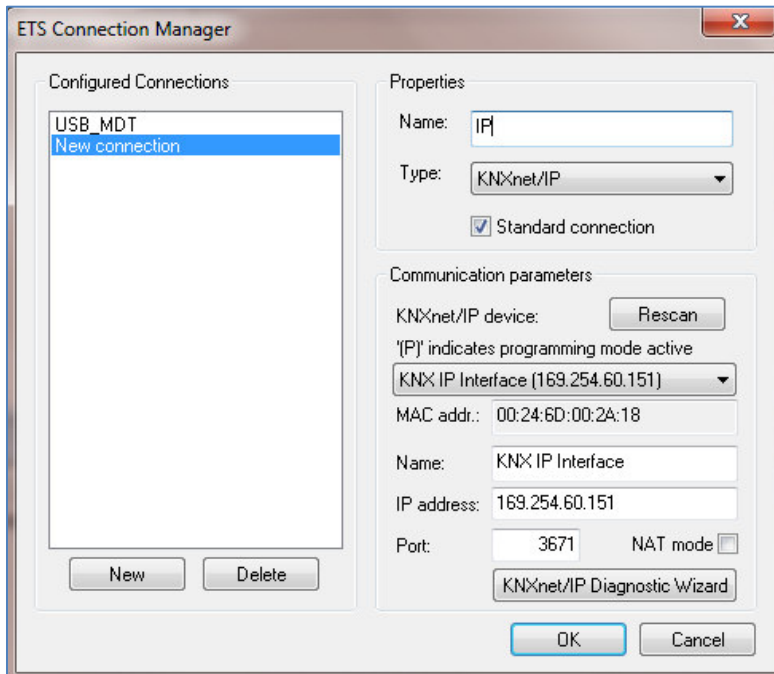


Illustration 6: Selection interface

Step 3:

To be able accessing the KNX/EIB, the KNX IP Interface needs a second physical address. This second physical address is only used for the access of the bus and must be adjusted separately: At the ETS the tab communication must be chosen in Extras -> Options. The communication interface is the just configured connection. By pressing the button settings..., the following window opens:

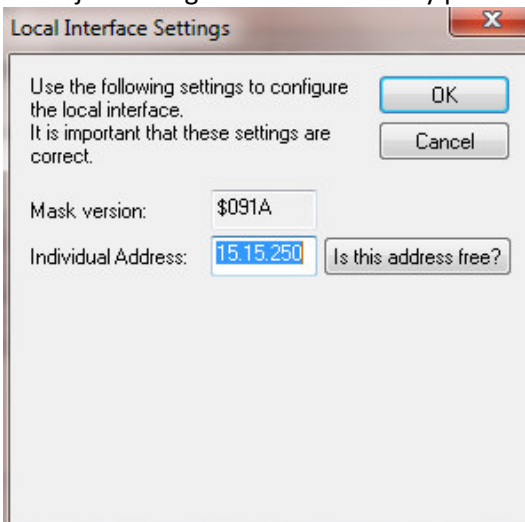


Illustration 7: Physical Address

Any free physical address must be written here. Maybe a so called dummy device must be inserted to reserve this address.

Step 4 (if required)

If problems occur at the last step (e.g. the error message „Interface not found“ is sent), it is recommended to go back to step 2 and to select the button KNXnet/IP Diagnostic Wizard.

The following window opens:

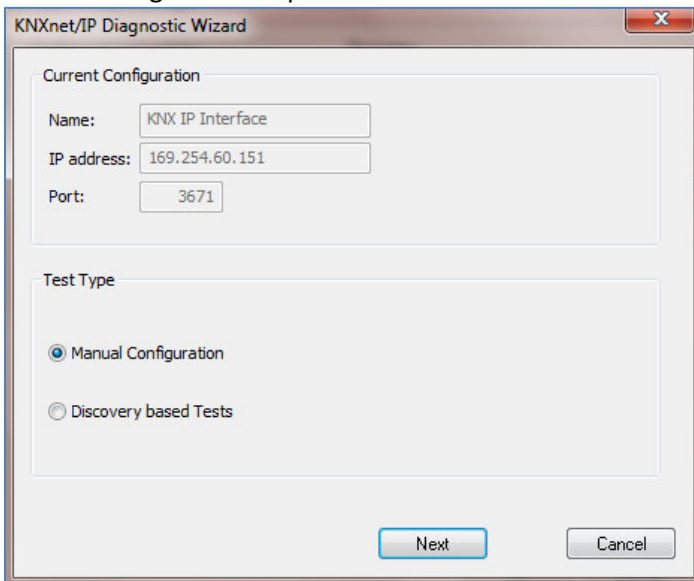


Illustration 8: Diagnostic-Wizard 1

Select the button “Next”, the following window opens:

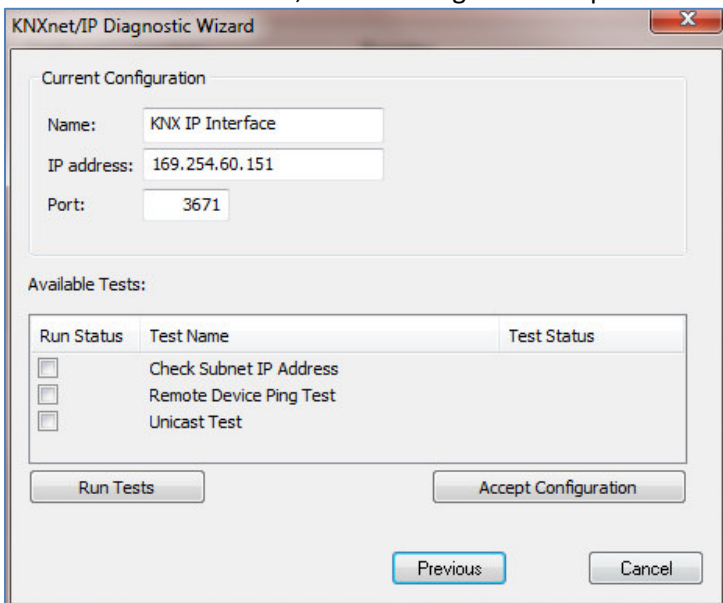


Illustration 9: Diagnostic-Wizard 2

Now the tests are started by pressing “Run Tests”. After the tests are done, press the button “Accept Configuration” independent from the results of the tests. The window is closed. Repeat the step 3 now.

4.2 ETS4-Software

The adjustment of the interface becomes much easier at the ETS4-Software. The following steps must be done to configure the IP-interface:

Step 1

The new interface is found automatically after the IP-Interface was connected. Now the IP-Interface is listed as discovered connection:

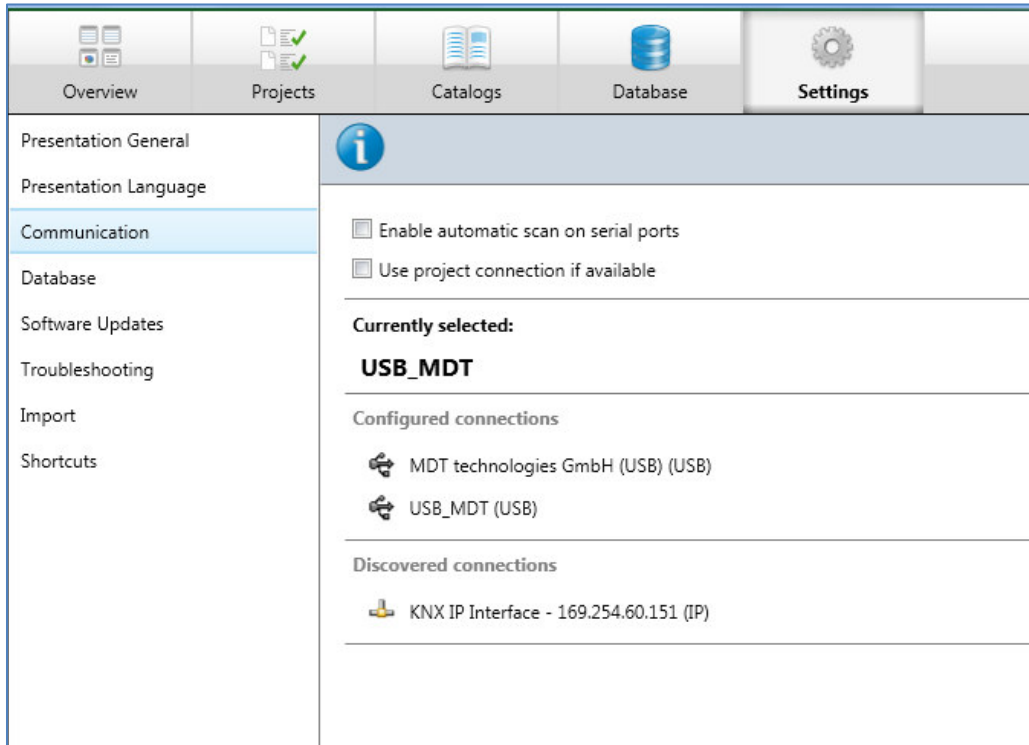


Illustration 10: Found connections

Now the discovered connection must be selected and must be chosen by pressing the button "Select". After choosing this connection the interface will switch to configured connections, which you can see at step 2.

If the IP-interface is not listed after connecting, it is recommended to switch the network settings of the PC to "IP address automatically" (at the TCP/IP protocol, TCP/IPv4). Also the interface must be set to default settings. If the interface is found now, first the interface is configured ready (steps 2 & 3) and afterwards the settings are adjusted to the aspired values.

Step 2

After the interface is found and selected it is displayed as follows:

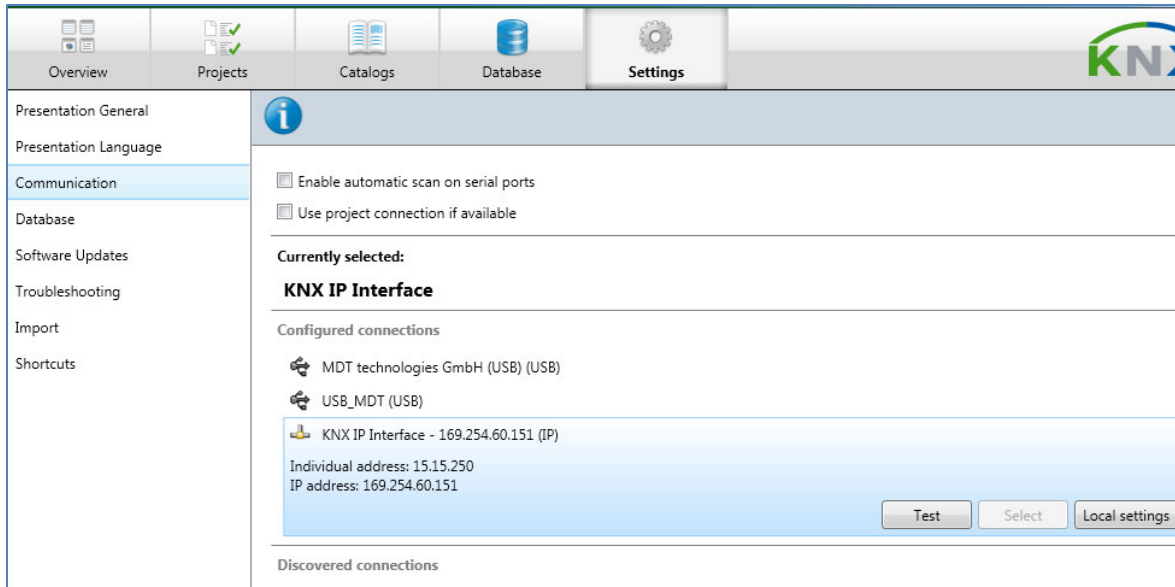


Illustration 11: Connection configured

To connect to the KNX/EIB the KNX IP interface needs a second physical address. This second physical address is only used for the bus access and must be adjusted separately. To adjust this physical address, the following submenu must be opened by pressing the button “Local settings”.

Step 3

At this submenu, the second physical address can be checked and changed:

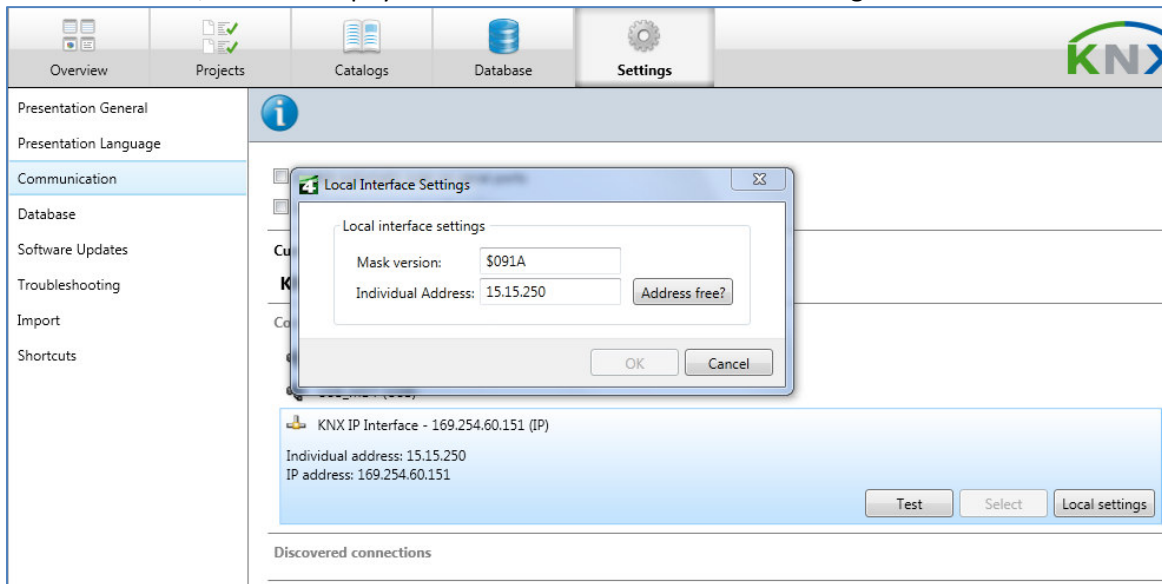


Illustration 12: Second physical address

Now the interface is completely adjusted. By selecting the button “Test”, the interface settings can be tested. If the test is OK, the star at the adjusted connection disappears and the following window can be seen:

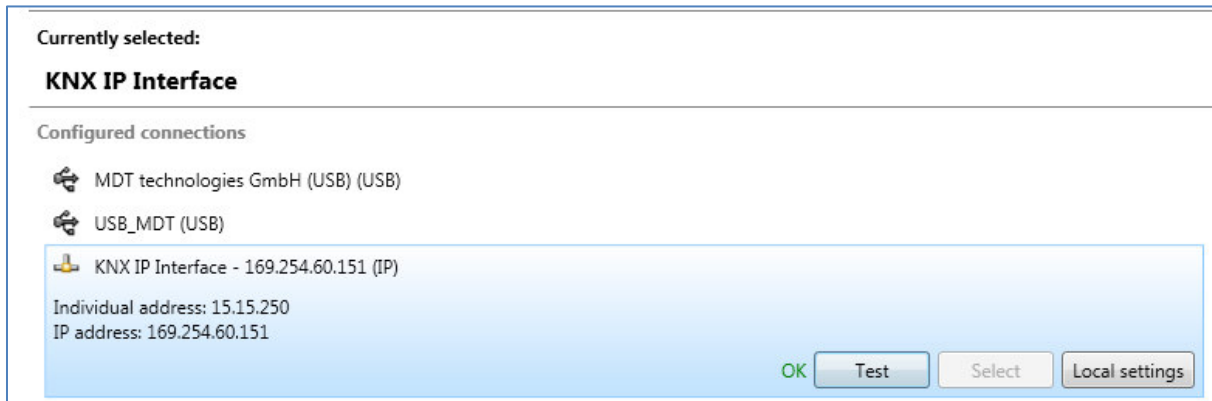


Illustration 13: Test interface

4.3 More than one connection

The KNX IP Interface 730 supports up to 5 simultaneous tunneling connections. Each connection uses its own physical address. The address of the first tunneling connection can be changed within the ‘Local Interface Settings’.

Physical addresses of the additional tunneling connections can be assigned directly on the device. This is done by pressing the learn key on the device longer than one second. After that, the Learn-LED will start blinking, which indicates that the assignment of the additional addresses was successful. The additional addresses are assigned as follows:

Tunneling connection 2 receives the next higher address than tunneling connection 1, tunneling connection 3 the next higher address than tunneling connection 2 etc.. For example: Device address: 1.1.255 (address within ETS topology) Connection 1: 1.1.250 (address within local settings) Connection 2: 1.1.251 (assigned by learnkey) Connection 3: 1.1.252 (assigned by learnkey) Connection 4: 1.1.253 (assigned by learnkey) Connection 5: 1.1.254 (assigned by learnkey) All addresses have to be unique and valid within the sub line of the interface

Note: be careful not to assign the same address as the device address for a connection. The device address can be changed within the topology view of the ETS software. For new devices (i.e. in the factory settings state), only the additional individual address of the first connection is active with the address 15.15.250. To support multiple concurrent connections additional address assignment is required.

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5.2 List of tables

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6 Attachment

6.1 Statutory requirements

The above-described devices must not be used with devices, which serve directly or indirectly the purpose of human, health- or lifesaving. Further the devices must not be used if their usage can occur danger for humans, animals or material assets.

Do not let the packaging lying around careless, plastic foil/ -bags etc. can be a dangerous toy for kids.

6.2 Routine disposal

Do not throw the waste equipment in the household rubbish. The device contains electrical devices, which must be disposed as electronic scrap. The casing contains of recyclable synthetic material.

6.3 Assemblage



Risk for life of electrical power!

All activities on the device should only be done by an electrical specialist. The county specific regulations and the applicable EIB-directives have to be observed.

6.4 Datasheet

MDT Interface, MDRC

Version		
SCN-USBR.01	USB Interface	2SU MDRC
SCN-IP000.01	IP Interface	2SU MDRC
SCN-IP100.01	IP Interface with Routing	2SU MDRC
SCN-LK001.01	Line Coupler	2SU MDRC

MDT technologies offers four KNX Interfaces to enable communication between PC and the KNX/EIB system.

KNX USB Interface: The USB Interface enables the communication between the PC and the KNX/EIB system. The USB interface is galvanically isolated from the KNX/EIB bus.

KNX IP Interface: The IP Interface enables the communication between the PC and the KNX/EIB system via LAN. 5 simultaneous connections possible. An external power supply (12 to 24VAC/DC) or power over ethernet is required.

KNX IP Interface with routing: This interface offers the same functions as the IP Interface, but the device routes telegrams as a line/area coupler using the the LAN.

KNX IP Line Coupler: The Line Coupler connects two KNX lines to each other. Electrical isolation between the lines and reduction of the busload by using the filter function.

The MDT KNX Interfaces are modular installation devices for fixed installation in dry rooms. They fit on DIN 35mm rails in power distribution boards or closed compact boxes.

For project design and commissioning of the MDT KNX Interfaces it is recommended to use the ETS3f/ETS4 or later. Please download the application software at www.mdt.de/Downloads.html

SCN-USBR.01



SCN-LK001.01



- Production in Germany, certified according to ISO 9001

USB Interface:

- To enable bidirectional communication between PC and the KNX bus via USB
- Fully compatible to ETS3f/4

IP Interface:

- To enable bidirectional communication between PC and the KNX bus TCP/IP
- 5 simultaneous connections possible (SCN-IP000.01 only)
- Programming the KNX bus via TCP/IP
- External power supply or PoE required

- Modular installation device for DIN 35mm rails
- Integrated bus coupling unit
- 3 years warranty

Technical Data	SCN-USBR.01	SCN-IP000.01	SCN-IP100.01	SCN-LK001.01
Interface	USB	Ethernet	Ethernet	KNX
Permitted wire gauge				
Screw terminal	--	0,5 - 4,0mm ² solid core 0,5 - 2,5mm ² finely stranded		--
KNX busconnection terminal	0,8mm Ø, solid core	0,8mm Ø, solid core	0,8mm Ø, solid core	0,8mm Ø, solid core
Power Supply	KNX bus	12 to 24VAC/DC	12 to 24VAC/DC	KNX bus
Power consumption	< 0,3W	< 0,8W	< 0,8W	< 0,3W each line
Operation temperature range	0 to + 45°C	0 to + 45°C	0 to + 45°C	0 to +45°C
Enclosure	IP 20	IP 20	IP 20	IP 20
Dimensions MDRC (Space Units)	2SU	2SU	2SU	2SU